

REMARKS

Reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

Status of the Application

The Office Action indicates that claims 1-18 are pending in the application. As claim 10 was canceled in an Amendment filed on November 12, 2003 (in connection with a Request for Continued Examination), only claims 1-9 and 11-18 are presently pending in the application.

Summary of Office Action

The Office Action advises that claims 1-4 and 17 are allowed, claims 7-10, 13 and 18 are objectionable, and claims 5, 6, 11, 12 and 14-16 are rejected.

Claims 8 and 15 were found to be objectionable in the Action because step (1) in claim 8 refers to "third aqueous dispersion of claim 1." As claims 8 and 15 are considered to be independent claims, the Action suggests that "this aqueous dispersion" alone should be used. Applicants note that no reasons in support of the objection entered against pending claims 7, 9, 13 and 18 are included in the Office Action.

Claims 5, 6, 11, 12 and 14-16 are rejected as anticipated by, or in the alternative as obvious over, two references: U.S. Patent 5,891,616 to Gilliam ("Gilliam") and U.S. Patent 6,391,537 to Letental et al. ("Letental").

Summarizing, the Office Action opens by advising that the rejected claims are directed to a material prepared by a process. Pursuant to U.S. practice, the Action notes that claims presented in this format are considered to be product claims. As a result, to the extent the product prepared by the process recited in such a claim is the same or obvious in view of a product in the prior art, the claim is unpatentable even if the prior art product was made by a process different than that recited in the pending claim.

Thus, because the products disclosed and taught by Gilliam and Letental disclose and/or teach the products prepared by the process described in claims 5, 6, 11, 12 and 14-16, the claims are not patentable.

Response

The objections to claims 7-9, 13, 15 and 18 are addressed in this amendment by removing references to prior claims in claims 7, 8, 13 and 15, and substituting process language therefor. In doing so, applicants submit that the objections are overcome.

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Moreover, in making this change to claim 8, applicants submit that the objection to claims 9 and 18 (each of which being dependent on claim 8) is also overcome.

Turning to the substantive rejections, applicants note that, in rejecting the claims over Gilliam, the Examiner states Gilliam discloses an aqueous dispersion containing silver salt of aliphatic carboxylic acid and silver halide in col. 17, example 3; in column 17, example 6; in column 21, example 19; in col. 4, lines 23-28:

It is a further object of the invention to improve the production economics of thermographic and photothermographic materials by enabling the production of particle suspensions containing a photosensitive agent and/or a substantially light-insensitive organic silver salt in a single reactor.

and col. 9, lines 21-40:

Photosensitive agents capable of rendering said thermographic materials photothermographic i.e. being able upon exposure of forming a species capable of catalyzing the reduction of silver ions of said organic silver salt of an organic carboxylic acid to silver by a reducing agent in thermal working relationship therewith upon the application of heat, should be in intimate contact with said organic silver salt of an organic carboxylic acid. This can be achieved by producing said photosensitive agent "ex-situ" and then adding it to said organic silver salt of an organic carboxylic acid or "in-situ" by preparing said photosensitive agent in the presence of said organic silver salt of an organic carboxylic acid. Suitable photosensitive agents therefore are heavy metal organic or inorganic salts, preferably of a Group 1b metal of the Periodic Table, with metal diazo-sulfaonate salts; salts of a hydrogen halide, such as chloride, bromide or iodide; or salts of nitric or sulfinic acid being preferred. Suitable metals include silver, copper, chromium, cobalt, platinum and gold; with silver being preferred. Mixtures of the above may be used.

Applicants respectfully submit that the claims are not anticipated or obvious over Gilliam for the following reasons.

Example 1 of Gilliam teaches a process for the preparation of silver behenate in which a sodium solution is first prepared with a pH of 8.7, due to sodium hydroxide being a very strong alkali and behenic acid being a very weak acid. However, silver nitrate is then added, whereupon the pH will decrease strongly as the insoluble silver behenate is precipitated as very fine particles which are held in dispersion by stirring. The pH of the dispersion is thereby rapidly reduced to well below 8.0. For the pH of this dispersion to be above 8.0,

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a substantial concentration of a water-soluble metal or ammonium salt of an aliphatic carboxylic acid with greater than 12 carbon atoms would have to be present, which is excluded according to claims 5, 6, 11, 12 and 14-16. Furthermore, the silver behenate dispersion disclosed in Example of Gilliam does not contain an ex-situ silver halide.

Example 2 of Gilliam is also deficient. This example teaches the same process described in Example 1 except that an aqueous solution containing potassium bromide and potassium iodide is added at the end of the preparation process, whereupon silver bromide and silver iodide are formed with the free silver ions and the silver ion concentration is strongly reduced. In this process some of the silver behenate may also have been converted into silver halide. No ingredient is present, however, that would provide the solution with a pH of at least 8.0. Therefore, Example 2 of Gilliam does not disclose or teach the preparation of the claimed invention.

Moreover, Gilliam contains no hint, indication or other teaching regarding the mixing of a dispersion of a substantially light-insensitive silver salt of an aliphatic carboxylic acid with greater than 12 carbon atoms which is substantially free of a water-soluble metal or ammonium salt of an aliphatic carboxylic acid with greater than 12 carbon atoms with ex-situ photosensitive silver halide followed by increasing the pH to above 8.0. Furthermore, as stated in the present specification at page 1, lines 28-36:

It is well known that hydrolysis of silver halides to silver hydroxide and silver oxide give rise to increased background densities in conventional silver halide emulsions, see e.g. The Theory of the Photographic Process Fourth Edition, Ed. T.H. James, Eastman Kodak (1977), page 395, and hence the silver oxide formed at high pH's would also be expected to give rise to increased background and in general reduced stability in the background density in photothermographic materials.

Thus, the relevant teaching provided by the prior art is away from the present invention. Applicants respectfully request withdrawal of the anticipation and obviousness rejections entered against claims 5, 6, 11, 12 and 14-16 based on Gilliam.

Turning to the substantive rejections based on Letental, applicants note that Office Action advises that

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[Letental] discloses an aqueous composition containing silver halide and silver salt of long chain fatty acid such as silver behenate, except the process of forming thereof such as raising pH to at least 8 as claimed in the present claimed invention. However, the claimed invention is directed to the claiming of a material by a process, and the processing steps fail to differentiate the claimed material from the teaching of the prior art. Therefore, the claimed invention is either anticipated by or in the alternative found obvious to the worker of ordinary skill in the art.

Applicants submit that Letental does not explicitly disclose all of the limitations recited in the rejected claims, and in particular does not disclose a pH of at least 8.0 in a dispersion comprising an ex-situ photosensitive silver halide and a substantially light-insensitive silver salt of an aliphatic carboxylic acid with greater than 12 carbon atoms which is substantially free of a water-soluble metal or ammonium salt of an aliphatic carboxylic acid with greater than 12 carbon atoms.

Letental is only anticipatory if the claimed pH is realized in at least one Example therein. Since Examples 1 to 4 of Letental provide no information with regard to the preparation of the silver behenate "wet cake" the pH of the silver behenate containing dispersions in these examples, the pH thereof is not disclosed and cannot be established. Moreover, in Example 5 of Letental, 363 g of behenic acid (0.8213 moles) is reacted with 390.7 g of 10.85% aqueous potassium hydroxide i.e. 42,391 g of KOH (0.7555 moles) and this mixture is reacted with 1000 g of 12.7% aqueous silver nitrate, i.e. 127.7 g of silver nitrate (0.75175 moles). The resulting silver behenate dispersion contains no photosensitive silver halide, is substantially free of a water-soluble metal or ammonium salt of an aliphatic carboxylic acid with greater than 12 carbon atoms and contains a maximum of 0.00375 moles of potassium behenate, which is insufficient to realize a pH of greater than 8.0. Therefore the dispersion produced in Example 5 both prior to and after diafiltration/ultrafiltration, which replaced the permeate containing residual potassium behenate with deionized water, does not disclose or teach each and every limitation set forth in the rejected claims.

The dispersion of Example 5 is then used in the aqueous photothermographic imaging element formulation of Example 3, which contains ex-situ photosensitive silver halide. However, this dispersion does not contain ingredients which would increase the pH above 8.0. Example 3 does not therefore disclose or teach each and every limitation set forth in the rejected claims.

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Moreover, Letental contains no hint, indication or teaching regarding the mixing of a dispersion of a substantially light-insensitive silver salt of an aliphatic carboxylic acid with greater than 12 carbon atoms which is substantially free of water-soluble metal or ammonium salt of an aliphatic carboxylic acid with greater than 12 carbon atoms with ex-situ photosensitive silver halide followed by increasing the pH to above 8.0.

Furthermore, as stated in the present specification at page 1, lines 28-36:

It is well known that hydrolysis of silver halide to silver hydroxide and silver oxide give rise to increased background densities in conventional silver halide emulsions, see e.g. The Theory of Photographic Process Fourth Edition, Ed. T.H. James, Eastman Kodak (1977), page 395, and hence the silver oxide formed at high pH's would also be expected to give rise to increased background and in general reduced stability in the background density in photothermographic materials.

Thus, the relevant teaching provided by the prior art is away from the present invention. Applicants respectfully request withdrawal of the anticipation and obviousness rejections entered against claims 5, 6, 11, 12 and 14-16 based on Letental.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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